

NIINO LAB.

[3D Printing and Molded Interconnect Devices]

Department of Mechanical and Biofunctional Systems

<http://lams.iis.u-tokyo.ac.jp>

Laboratory for Additive Manufacturing Science (LAMS)

Precision
engineering
department

Functional Geometry Fabrication

3D Printing and Molded Interconnect Devices

Additive Manufacturing (AM), which recently becomes known as 3D Printing, provides unlimited freedom in complexity of structures while conventional subtractive machining or forming has limitation in low accessibility of their tools to the objects. LAMS is making research on AM processes to improve various performances such as precision and productivity, and also working on AM applications to develop effective usages of this technology such as fabrication of tissue engineering scaffolds. In LAMS, fabrication and application of molded parts with circuitry on their surfaces or insides, which are known as molded interconnect devices (MIDs), is also studied to provide molded parts with high-dimensional functionality.

Preheat free plastic laser sintering

Nitrogen free plastic laser sintering by preheat free process

Laser sintering fabrication of tissue engineering scaffolds

Towards mechatronic application of MIDs

Towards fluidic device application of MIDs

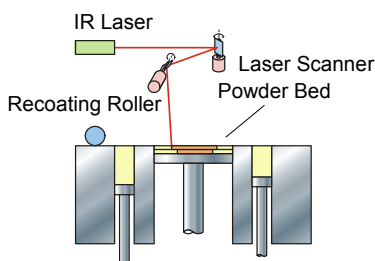
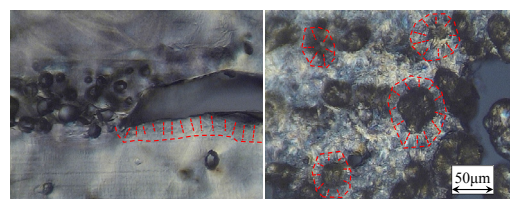


Fig.1 Laser sintering



Microstructure out of preheat free Microstructure out of preheat process

Fig2 Microstructure control in laser sintering

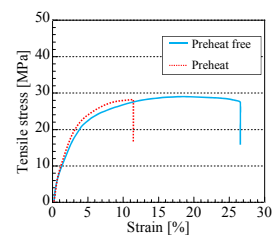


Fig.3 Tensile performance of preheat free.

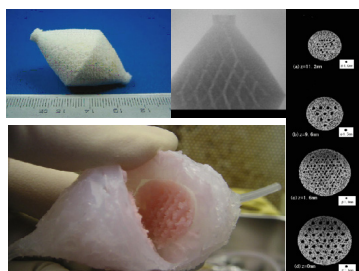


Fig. 4 Tissue engineering scaffold

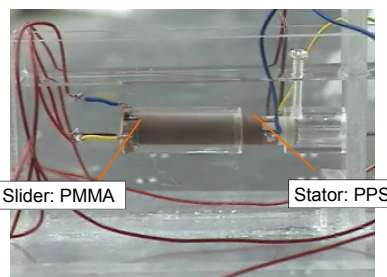


Fig. 5 MID Motor

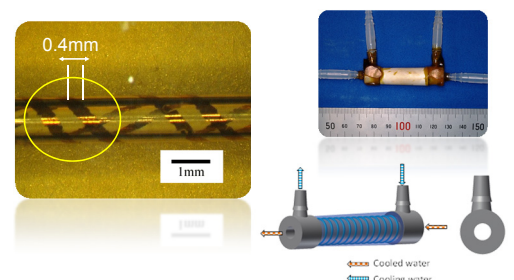


Fig. 6 MID as fluidic devices